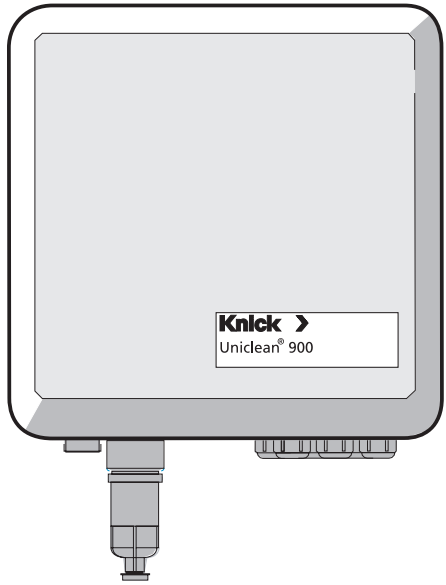
# Probe Controller Uniclean® 900(X)

## For Fully Automated Measurement and Cleaning




## Installation Instructions

78990

Knick

## Warranty

Defects occurring within 3 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender). Sensors, fittings, and accessories: 1 year.
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## Return of Products Under Warranty

Please contact our Service Team before returning a defective device. Ship the cleaned device to the address you have been given. If the device has been in contact with process fluids, it must be decontaminated/disinfected before shipment. In that case, please attach a corresponding certificate, for the health and safety of our service personnel.

## Disposal

Please observe the applicable local or national regulations concerning the disposal of "waste electrical and electronic equipment".

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## Trademarks

The following trademarks are used in this user manual without further marking

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# EG-Konformitätserklärung
# EC Declaration of Conformity
# Déclaration de Conformité CE

Knick
Elektronische Messgeräte
GmbH & Co. KG
Beuckestr. 22
D-14163 Berlin

| | |
|---|---|
| Dokument-Nr. / Document No. / No. document | **EG70801A** |
| | Aufbewahrung / Keeping / Garde en dépôt: **Jürgen Cammin (KB)** |
| Wir, die / We, / Nous, | **Knick Elektronische Messgeräte GmbH & Co. KG**<br>**Beuckestr. 22, D-14163 Berlin** |
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| Produktbezeichnung / Product identification / Désignation du produit | **Uniclean® 900** |

auf welche(s) sich diese Erklärung bezieht, mit allen wesentlichen Anforderungen der folgenden Richtlinien des Rates übereinstimmen:
to which this declaration relates is/are in conformity with all essential requirements of the Council Directives relating to:
auquel/auxquels se réfère cette déclaration est/sont conforme(s) aux exigences essentielles de la Directives du Conseil relatives à: *)

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| EMV-Richtlinie / EMC directive / Directive CEM | **2004/108/EG** |
| Jahr der Anbringung der CE-Kennzeichnung / Year in which the CE marking was affixed / L'année d'apposition du marquage CE | **2007** |
| Norm / Standard / Norme | **DIN EN 61326 /**<br>**VDE 0843 Teil 20: 2004-05** |

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The safety instructions contained in the documentation accompanying the product have to be observed. If the apparatus is modified without having obtained manufacturer's prior consent and/or the safety instructions are not followed, this declaration becomes void. /
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| Ausstellungsort, -datum / Place and date of issue / Lieu et date d'émission | **Berlin, 01.08.2007** |

**Knick Elektronische Messgeräte GmbH & Co. KG**

ppa.
Wolfgang Feucht
(Vice President Engineering, R&D)

ppa.
Bernhard Kusig
(Vice President Marketing/Sales)

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| Dokument-Nr. / Document No. / No. document | **EG70801B** |

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| Produktbezeichnung / Product identification / Désignation du produit | **Uniclean® 900 X** |

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| | | |
|---|---|---|
| ATEX 100 Richtlinie / ATEX 100 directive / Directive ATEX 100 | **94/9/EG** | EG-Baumusterprüfbescheinigung / EC Type Examination Certificate / Attestation d'examen CE de type<br>**KEMA Quality B.V.,**<br>**NL-6812 AR Arnhem, ExNB-No. 0344**<br>**KEMA 04ATEX1036** |
| Harmonisierte Normen / Harmonised Standards / Normes harmonisées | **EN 50014: 1997+A1+A2**<br>**EN 50020: 2002**<br>**EN 50281-1-1: 1998+A1**<br>**EN 50284: 1999** | Kennzeichnung / Designation / Marquage<br>**CE 0044 Ex II 2(1) GD Ex ia IIC T4 T 70°C** |
| EMV-Richtlinie / EMC directive / Directive CEM | **2004/108/EG** | Jahr der Anbringung der CE-Kennzeichnung / Year in which the CE marking was affixed / L'année d'apposition du marquage CE: **2007** |
| Norm / Standard / Norme | **DIN EN 61326 /**<br>**VDE 0843 Teil 20: 2004-05** | |

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# Table of Contents

Probe Controller for Fully Automated Measurement and Cleaning


Warranty ..... 2
Return of Products Under Warranty ..... 2
Disposal ..... 2
Trademarks ..... 2
**Short Description ..... 7**
Intended Use ..... 10
Safety Information ..... 11
Application in Hazardous Locations: Installation Precautions ..... 12
Rating Plates ..... 12
Product Coding ..... 13
**Product Line** ..... 14
**Assembly ..... 15**
Arrangement of Components ..... 15
Uniclean 900(X) - Wall Mounting ..... 16
Uniclean 900(X) - Pipe Mounting ..... 17
Assembly ..... 18
Media Adapter ..... 18
**Media Supply: Uniclean 900(X) ..... 19**
Compressed Air, Water, Purge Air, Auxiliary Media ..... 19
Arrangement of Functional Elements ..... 20
Media Supply with Media Adapter ..... 21
Media Adapter and Metering Pump ..... 22
Metering Pump ..... 23
- Media Adapter and Metering Pump ..... 24
- Bill of Material for Media Adapter ..... 24
- Bill of Material for Metering Pump ..... 24

Media Connection ..... 25
- Media Connection ..... 26
- Bill of Material for Media Connection, Cleaning and Rinse Function ..... 26
- Attaching the Media Connection to the Uniclean 900(X) ..... 27

Pneumatic Couplings on the Uniclean 900(X) ..... 28
Attaching the Media Connection to Ceramat WA 150(X) - Example ..... 29

# Table of Contents

Probe Controller for Fully Automated Measurement and Cleaning


**Electrical Installation ..... 30**
Connecting Preassembled Cables ..... 31
Terminal Assignments of Uniclean 900(X) ..... 32
Ex Connection to DCS ..... 36
Control Programs and Measurement Procedures ..... 37
**Uniclean 900(X) Specifications ..... 39**
**Appendix ..... 44**
Pneumatic Diagram of Uniclean 900 ..... 45
Pneumatic Diagram for Media Connection to Uniclean 900 ..... 46
Recommended Connection of Standard Retractable Housings, e.g. InTrac 7xx ..... 47
Commissioning of Hardware ..... 52
Start-up: "Plug and Play" ..... 53
Start-up Program ..... 54
Manual Control via Protos 3400(X) ..... 55
Selected Cleaning Agents for Uniclean 900 and their Applications ..... 56
EC-Type-Examination Certificate ..... 59
FM Certificate of Compliance ..... 60
Index ..... 61

**Notice**

These installation instructions do NOT describe
- how to operate the sensor lock-gate
- how to control the programs via Protos 3400(X).

The user manuals for sensor lock-gates such as SensoGate WA 130(X), Ceramat WA 150(X), Ceramat WA160(X) and the user manuals for Protos 3400(X) as well as the PHU 3400(X)-110 module are available for free download at www.knick.de.

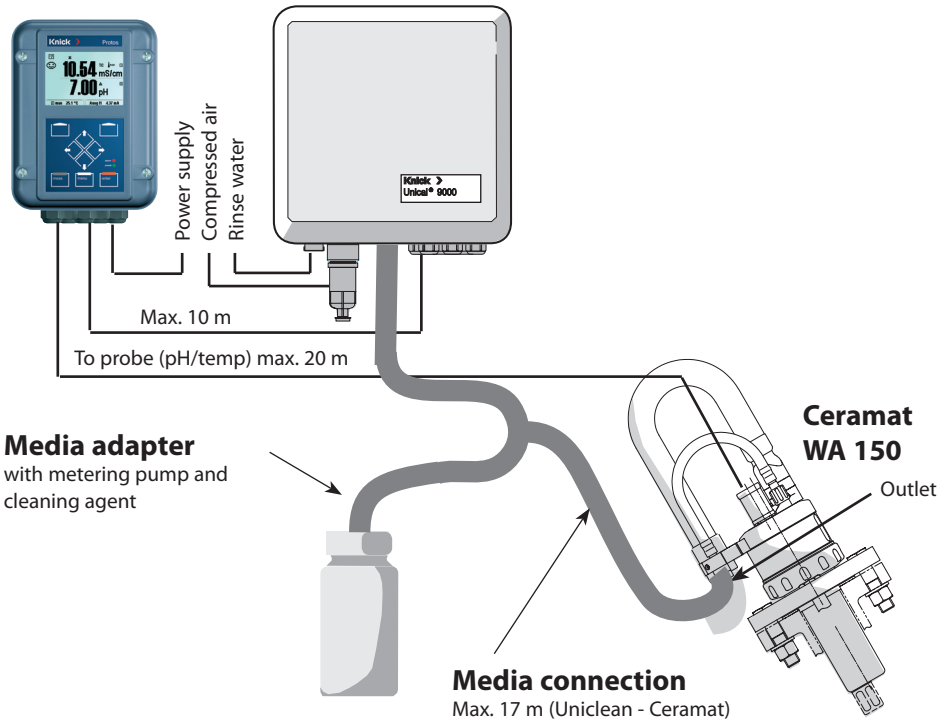
# Short Description

The Uniclean 900 (X) is a probe controller for fully automated measurement and cleaning.
The Uniclean is modular and functionally structured. The enclosure contains the electronic controller, filters, and valves. An external media adapter is provided for the cleaning solution.

The manufacturer offers the following components which form an optimally matched, fully automated process analysis system:

- Protos 3400(X) (Modular process analysis system)
- Uniclean 900(X) (Automatic control of retractable probes)
- Ceramat WA 150(X) (Sensor lock-gate)

**Protos 3400(X)** **Uniclean 900(X)**



**Media Adapter and Metering Pump**
Port III of the media adapter houses a wear-resistant and maintenance-free metering pump with a very long service life which is used for the cleaning agent.
The metering pump is located in the "head" of a 3.5-liter bottle. The cleaning agent is guided to the sensor lock-gate through the media connection.
A multiplug at the probe which is provided with check valves prevents uncontrolled dilution. The displaced volume of the metering pump is approx. 25 mL / stroke, the maximum lifting height is 10 m.

**Rinsing and Cleaning**
Be sure to take account of the chemical resistance of the process-wetted materials of the media adapter, media connection, and pump.
When hot vapor or aggressive cleaning agents are to be used, an adapter for additional media (ZU 0654, ZU 0655) is available for the sensor lock-gates of the Ceramat Series.

**Monitoring Functions**
- Water stop
- Compressed-air monitoring (with pressure switch)
- Sensor dismount guard (by air current monitoring)
- Level monitoring
  generates the NAMUR messages "maintenance request" and "failure".
- A "wear counter" monitors the number of probe movements and generates a message when a critical value is reached.

# Short Description

**Measurement Procedures**

- **Continuous Measurement:**
  With continuous measurement the pH electrode is located in the process medium and is retracted for cleaning.

- **Short-Time Measurement:**
  (interval measurement, sampling, sample mode ...)
  The pH electrode is only momentarily moved into the process medium. This method is applied when measuring aggressive or thermally demanding process media which require short measurement times with long rest periods.
  Example:
  After the cleaning the probe remains in the calibration chamber and only moves into the process for measurement upon request (or time-controlled).

**Connection to Process Control / Process Evaluation**

The Uniclean 900(X) probe controller can be connected to a superordinated control system, a DCS (Digital Control System).

**Retractable Fittings / Sensor Lock-Gates**

Most of the available types of retractable fittings / sensor lock-gates with pneumatic or electric limit switches can be used. Inductive limit position switches must be equipped with a floating relay contact and require an external voltage supply. We recommend the Ceramat WA 150 / WA 160 with ceramic seal to the process.

# Intended Use

The Uniclean 900(X) probe controller allows fully automated pH measurement and cleaning.

The Uniclean 900X is approved for operation in hazardous locations.

The sturdy enclosure (IP 65) can be wall or pipe mounted. The version with hygienic, polished stainless steel enclosure allows application in the field of biotechnology, food processing, and in the pharmaceutical industry. The version with coated steel enclosure – extremely corrosion resistant – has been developed for application in the chemical industry, environmental engineering, water and waste-water treatment, and for application in power plants.

The Uniclean 900(X) evaluates pneumatic and electric check-back signals from retractable probes / sensor lock-gates. A wear-resistant and maintenance-free metering pump with a very long service life is used for cleaning agents. The fluid is guided through a separate tube to the probe.
A multiplug at the probe which is provided with check valves prevents dilution caused by fluid mixing. Cleaner consumption is extremely low.

The manufacturer recommends to use the Uniclean 900(X) in combination with the Protos 3400(X) process analysis system and the Ceramat WA 150(X) sensor lock-gate.
This combination ensures optimal traceability according to FDA 21 CFR Part 11 (AuditTrail).
The Protos 3400(X) process analysis system allows easy adaptation of the cleaning programs to the process.

**Application in Hazardous Locations**

The Uniclean 900X probe controller is intended for operation in specific environments and specific fields of application. These are listed in the user manual as specifications for environment, for installation and commissioning, intended use (= application), assembly and dismantling, and for maintenance.

Observe the influences of humidity, ambient temperature, chemicals, and corrosion. If the specifications in the user manual are not sufficient for assessing the safety of operation, e.g. because your specific applications are not described, please contact the manufacturer to make sure that the application is possible and safe.
Prerequisite to safe use of the equipment is the observance of the specified ambient conditions and temperature ranges.

When using the Uniclean 900X probe controller, the stipulations for electrical installations in hazardous areas (EN 60079-14) must be observed.
When installing the device outside the range of applicability of the 94/9/EC directive, the appropriate standards and regulations in the country of use must be observed.

The Uniclean 900X probe controller has been developed and manufactured in compliance with the applicable European guidelines and standards.
Compliance with the European Harmonized Standards for use in hazardous locations is confirmed by the EC-Type-Examination Certificate.
Compliance with the European guidelines and standards is confirmed by the EC Declaration of Conformity.
The EC Declaration of Conformity and the EC-Type-Examination Certificate are included in the user manual.

There is no particular direct hazard caused by the operation of the device in the specified environment.

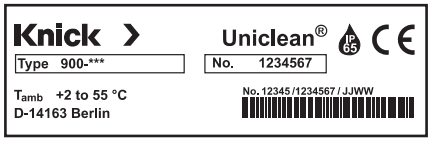
# Safety Information

Application in Hazardous Locations: Installation Precautions

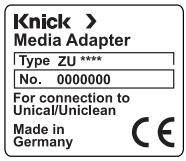
**Be sure to observe the following precautions:**
**Installation:**
The Uniclean 900(X) is supplied through the Protos 3400(X). Power supply to the Protos 3400(X) must be disconnectable near the device by a two-poled switch incorporated in the building installation. This switch must meet the requirements of EN 60947-1 and EN 60947-3, be marked as disconnect device for Uniclean 900(X), and be easily accessible by the user.

- In a Zone 20 or 21 dust explosion hazardous area the bottles for buffer and cleaning liquids must be installed in a way that there is no explosion risk due to electrostatic discharge. For example, the bottles should be mounted within a grounded, electrostatically conductive container / cabinet or be sheathed with grounded, electrostatically conductive material.
- The Uniclean 900X may be opened during operation.

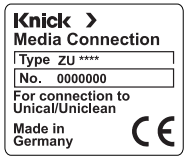
# Rating Plates



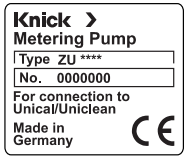

Uniclean 900



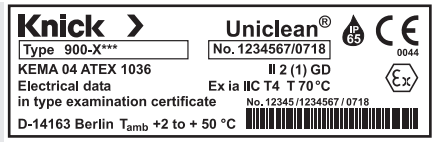

Media adapter




Hose

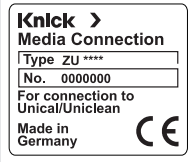



Metering pump

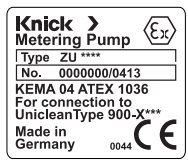



Uniclean 900X

Media adapter




Hose




Metering pump

**(Ex version)**

# Product Coding

Uniclean 900 Probe Controller

**Order number Uniclean 900** **900** - [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] - [ ]

**Approvals**
- for hazardous area Zone 1: X
- for safe areas only: N

**Enclosure surface**
- Steel, coated, corrosion-proof: C
- Stainless steel, polished, hygienic: S

**Media connection (water rinsing only)**
- 5 m (sealing material: FKM): 1 — 0 0
- 10 m (sealing material: FKM): 2 — 0 0
- 15 m (sealing material: FKM): 5 — 0 0

**Media connection (water rinsing + cleaner)**
- 5 m (sealing material: FKM): 3 — 1/A
- 10 m (sealing material: FKM): 4 — 1/A
- 17 m (sealing material: FKM): 6 — 1/A
- 5 m (sealing material: EPDM): C — 1/A
- 10 m (sealing material: EPDM): D — 1/A
- 17 m (sealing material: EPDM): F — 1/A

**Media interface for standard probes**
- With interface: 1
- Without interface (for WA 130/150/160): 0

**Media adapter with 1 port**
- With (sealing material: FKM): 1
- With (sealing material: EPDM): A
- Without: 0

**Equipment for port**
- Metering pump with empty 4 L bottle (EPDM): 2
- Metering pump with empty 4 L bottle (FKM): B
- Without: 0

**Supplementary air purging kit**
- With: C
- Without: N

**Supplementary ext. valve kit**
(pilot valve, main valve, hose connections)
- 1 external valve: E
- Without: N

**Special version**
- Without: 0 0 0

**Product Line** Accessory No.

- Basic unit
- Media connection for rinse function
  - FKM, 5 m ..... ZU 0572 / 1
  - EPDM, 5 m ..... ZU 0572 / 2
  - FKM, 10 m ..... ZU 0573 / 1
  - EPDM, 10 m ..... ZU 0573 / 2
  - FKM, 15 m ..... ZU 0652 / 1
  - EPDM, 15 m ..... ZU 0652 / 2
- Media connection for cleaning and rinse function
  - FKM, 5 m ..... ZU 0574 / 1
  - EPDM, 5 m ..... ZU 0574 / 2
  - FKM, 10 m ..... ZU 0575 / 1
  - EPDM, 10 m ..... ZU 0575 / 2
  - FKM, 17 m ..... ZU 0653 / 1
  - EPDM, 17 m ..... ZU 0653 / 2
- Media adapter
  - FKM / EPDM ..... ZU 0577 / 1
  - EPDM ..... ZU 0577 / 2
- Metering pump FKM ..... ZU 0580 / 1
- Metering pump EPDM ..... ZU 0580 / 2

**Supplementary air purging kit** ..... ZU 0587
- Pilot valve and
- Main valve for air as a medium

**Supplementary ext. valve** ..... ZU 0588
- Pilot valve
- Main valve
- Tube connections

- Media interface for connection to standard probes ..... ZU 0576
  (not required for Ceramat)

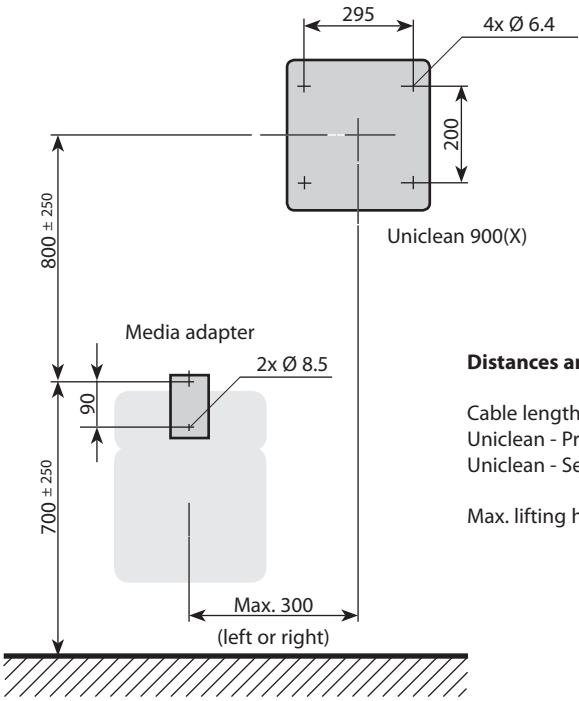
Adapter for additional media
  - stainless steel 1.4571, FKM ..... ZU 0654 / 1
  - stainless steel 1.4571, EPDM ..... ZU 0654 / 2
  - PEEK, FKM ..... ZU 0655 / 1
  - PEEK, EPDM ..... ZU 0655 / 2
- Connection kit ..... ZU 0656

# Assembly

Arrangement of Components: Permissible Distances and Lifting Heights

**Arrangement of Components**

The mounting site must have sufficient mechanical strength and be free of vibrations. Be sure to observe the permissible ambient temperature. It must never sink below +5 °C. Special measures must be taken for outdoor installation: Direct sun light can cause an impermissible temperature increase.




**Distances and lifting height**

Cable lengths:

| | |
|---|---|
| Uniclean - Protos 3400(X): | 10 m |
| Uniclean - Sensor lock-gate: | 5m, 10 m, or 17 m |

Max. lifting height of pumps: 10 m

Dimensions in mm

**Fig.:** Mounting arrangement Uniclean 900, media adapter

# Assembly

Uniclean 900(X) - Wall Mounting

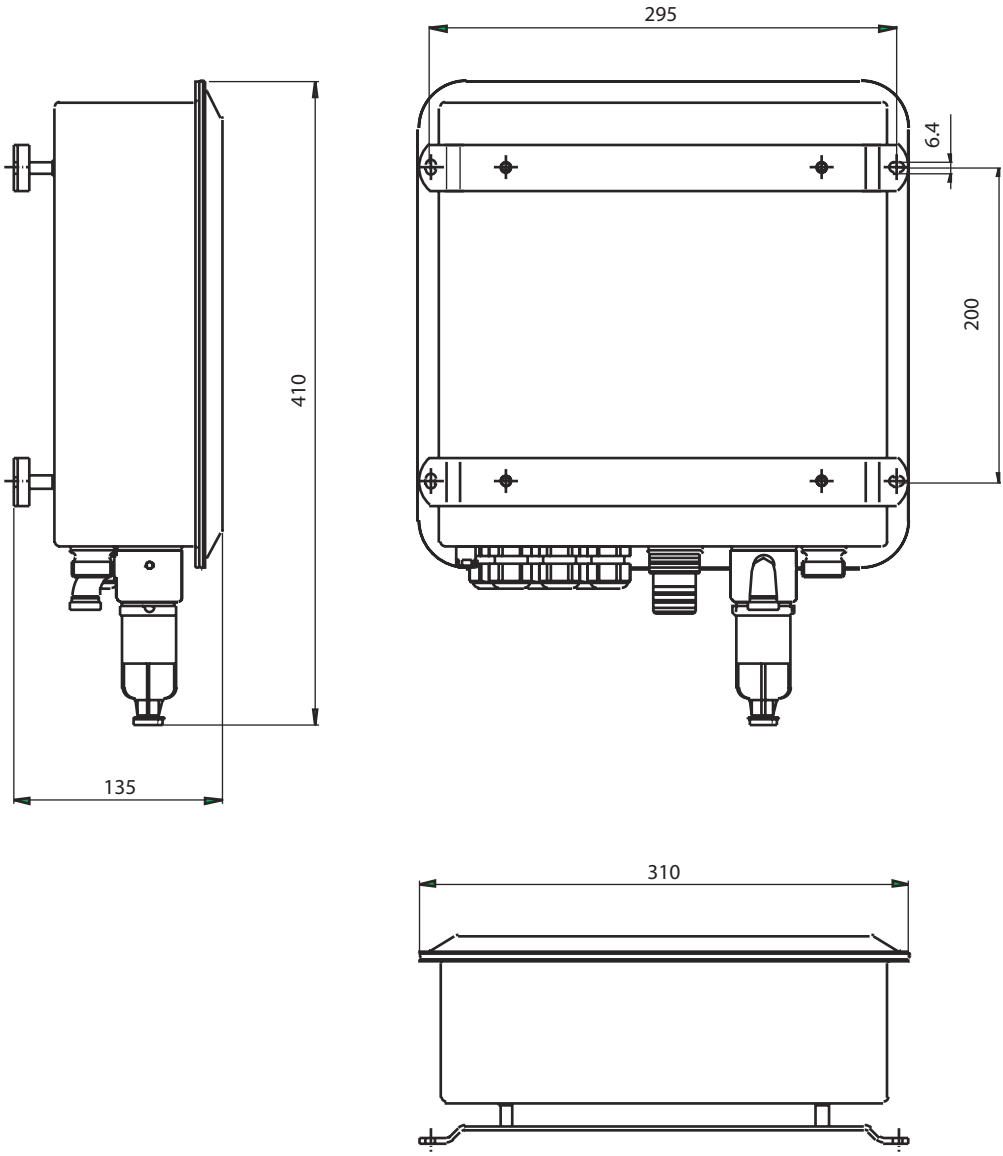
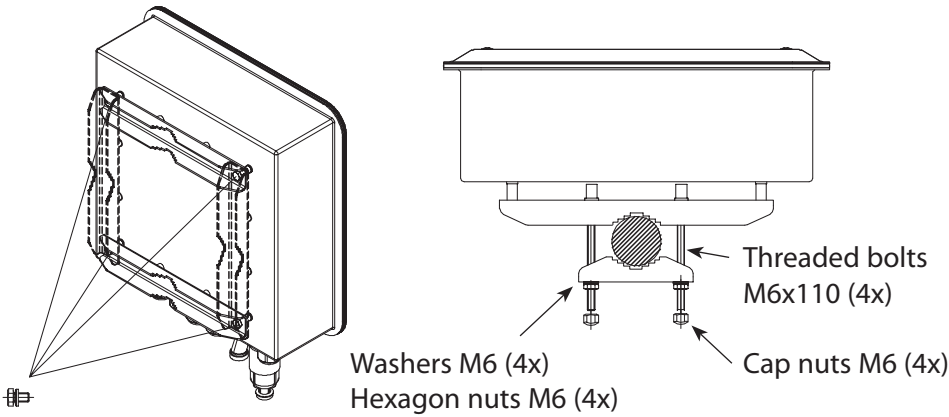



**Fig.:** Uniclean 900(X), Mounting Dimensions (in mm)

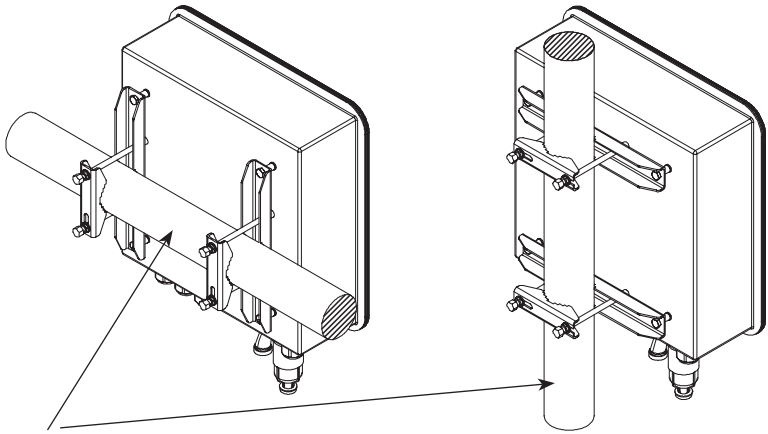
# Assembly

Uniclean 900(X) - Pipe Mounting




Hexagon head screws M6x10 (4x)
Washers M6 (4x)

**Vertical or horizontal pipe mounting:**



Pipe diameter: 30 ... 65 mm

# Assembly

Media Adapter

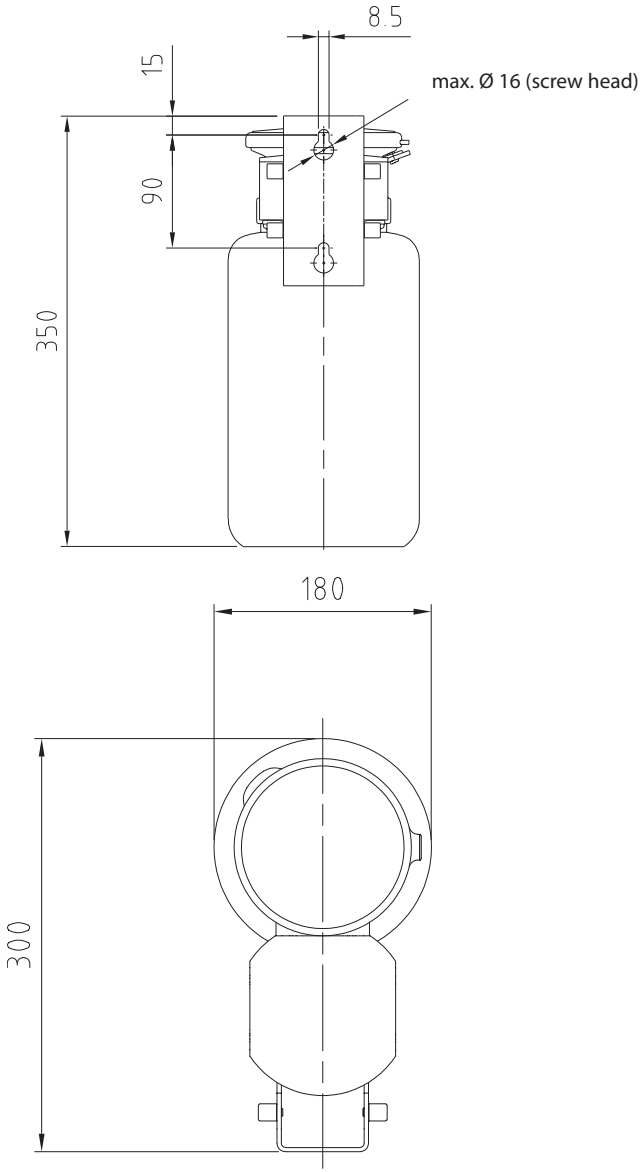



**Fig.:** Media adapter, mounting dimensions (in mm)

# Media Supply: Uniclean 900(X)

Compressed Air, Water, Purge Air, Auxiliary Media

**Compressed-Air Supply**

The Uniclean 900(X) is operated with an air pressure of 4* ... 10 bars.
Adjust the pressure regulator so that the internal operating pressure is kept within 4 and 7 bars. The air must be condensate- and oil-free.
Maximum air consumption during probe activation is 300 L/min.
The compressed air supply is connected via a 1/4" internal thread, nominal width: 6 mm (preferably flexible).

* Increased minimum pressure required for probe in the case of high process pressure or difficult process media

**Warning!**

- If water has entered the pneumatic system, you must immediately take the device out of service. Please contact the technical service department.

**Water Supply**

The Uniclean 900(X) is operated with a water pressure of 2 ... 6 bars.
Water: filtered 100 µm, temperature 5 ... 65°C.
The water supply lines shall not contain a check valve.
The water supply is connected via a 1/4" internal thread or 3/4" external thread (coupling), preferably flexible tube, 1/2".
We recommend the ZU 0656 connection kit.

# Arrangement of Functional Elements

Compressed Air, Water, and Auxiliary Media at the Uniclean 900(X)

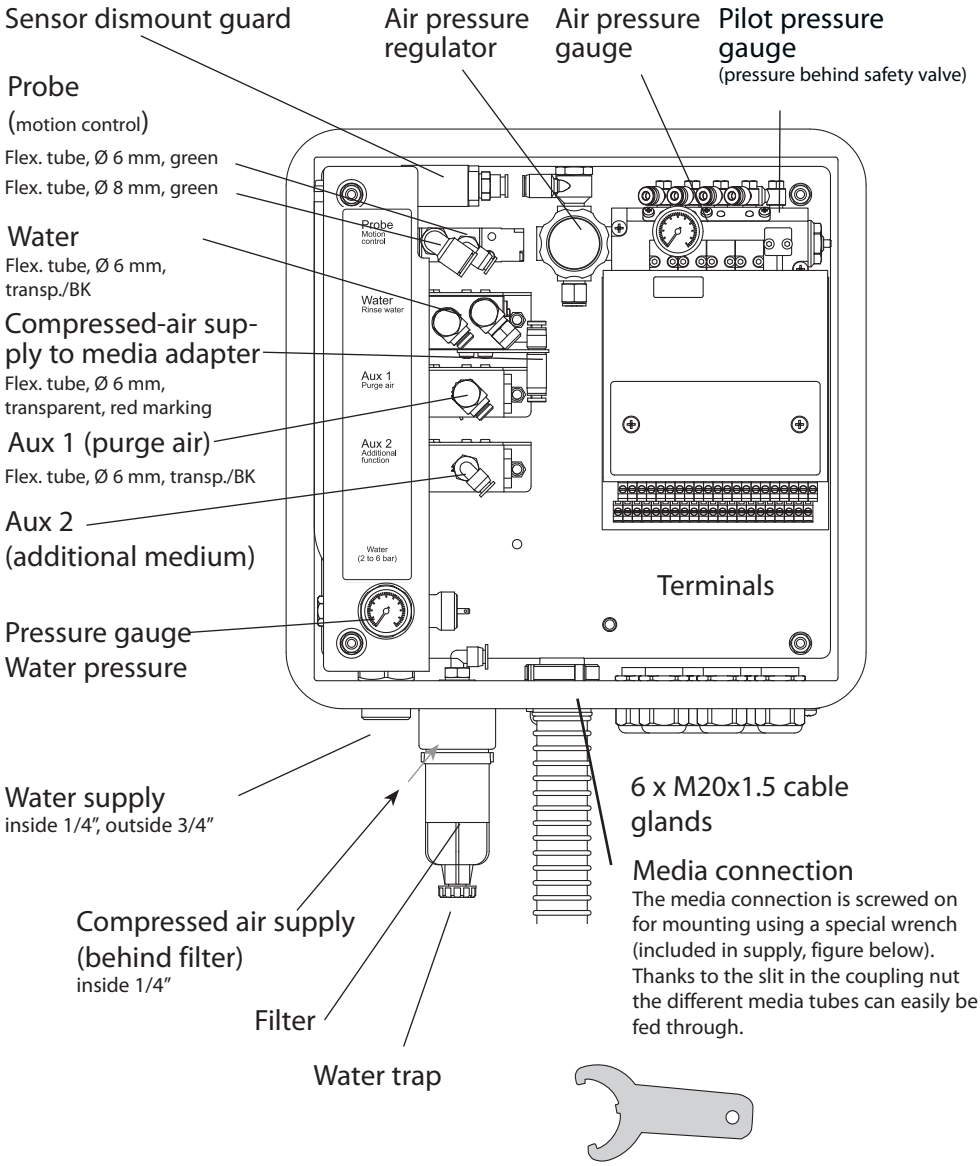



**Fig.:** Arrangement of the functional elements in the Uniclean 900(X)

# Media Supply with Media Adapter

Cleaning Agent

The media adapter provides a port for connection of a metering pump for cleaning agents which is designed for the use of aggressive media (diluted acids, diluted alkaline solutions, solvents – cf table in the appendix).
The Protos automatically recognizes and monitors the port equipment of the media adapter.

**Caution**
As delivered, the port of the media adapter is closed with a blind plate.
When the cleaner pump has been mounted, you can store the blind plate on the fixing pins at the side of the media adapter.

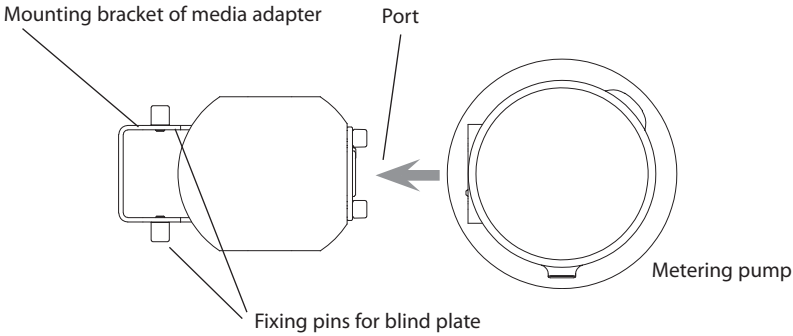



**Fig.:** Top view of media adapter. Metering pump is simply plugged on and fixed with two captive screws.

# Media Adapter and Metering Pump

Plug-in Connection

**Attaching the Media Connection to the Media Adapter**

Carefully plug the "media adapter" connector of the media connection into the media adapter with the flat side facing the wall (or mounting pipe/post). The ends of the tubings must meet the O-rings of the media adapter. Then tighten the two fixing screws.

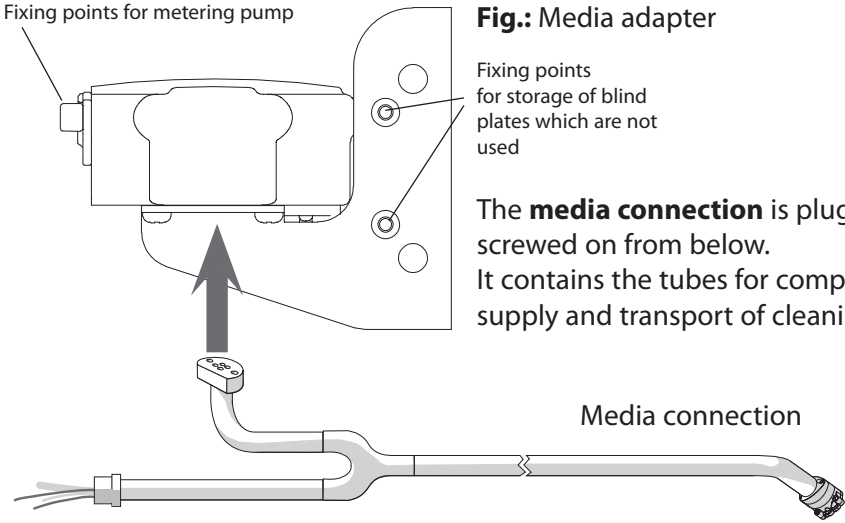
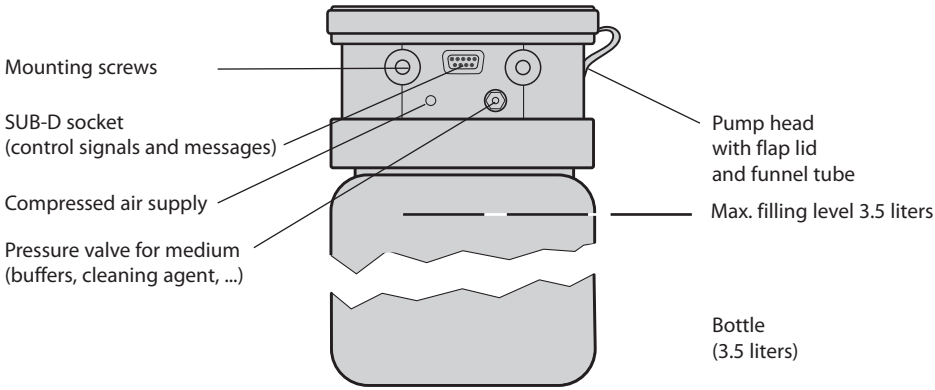



**Fig.:** Media adapter

The **media connection** is plugged and screwed on from below.
It contains the tubes for compressed-air supply and transport of cleaning agent.

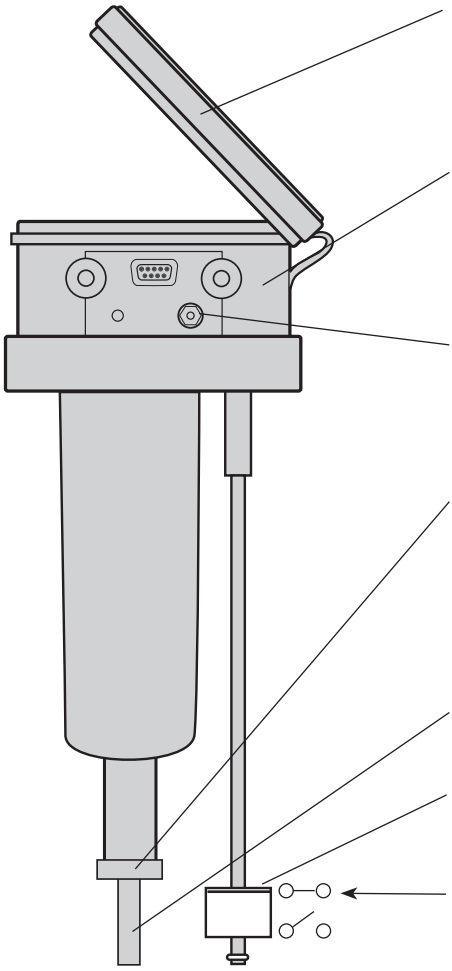
**Metering Pump: Plug-in Connection for Media and Control Signals**



# Metering Pump

Function Description

The metering pump is a wear-resistant and maintenance-free bellows-type pump without dynamic seals. It provides an integrated pneumatic valve and a level monitoring device.
If required, the bottle can be screwed off the pump head for cleaning.
Also the check valves can be easily removed and cleaned:



**Lid**
After opening the flap lid, the funnel tube can be accessed.

**Pump head**
The bottle is simply screwed off the pump head which remains connected to the media adapter.

**Pressure valve**
The complete valve can be removed using a wrench (W 8).

**Suction valve**
Ball, spring, and O-ring are located behind a hexagon head screw (17 mm). (Be careful when disassembling!)

Suction nozzle

**Level monitoring**
Remove O-ring for cleaning.
Float can be pulled off.
**Caution:**
**Observe the mark on the float!**
**Top:** ○—○

# Media Adapter and Metering Pump

Bill of Material

## Bill of Material for Media Adapter

| Component | Material |
|---|---|
| Blind plate | PP-GF (not wetted) |
| Molded seal | EPDM (FKM gasket supplied with FKM pump) |
| Housing | PP-H |
| Gasket for media connection | FKM / EPDM * |

## Bill of Material for Metering Pump

| Component | | Material |
|---|---|---|
| Pump lid | | FKM / EPDM * |
| Pump membrane | | FKM / EPDM * |
| Pump housing | | PP-GF |
| Pump head | | PP-GF |
| Float | | PP |
| Float tube | | PVDF |
| Bottle | | PE-HD |
| | | |
| Check valves | | |
| | Ball | Glass |
| | Spring | Hastelloy |
| | Sealing | FKM / EPDM * |

* Depending on model version:
Model ... /1: FKM
Model ... /2: EPDM

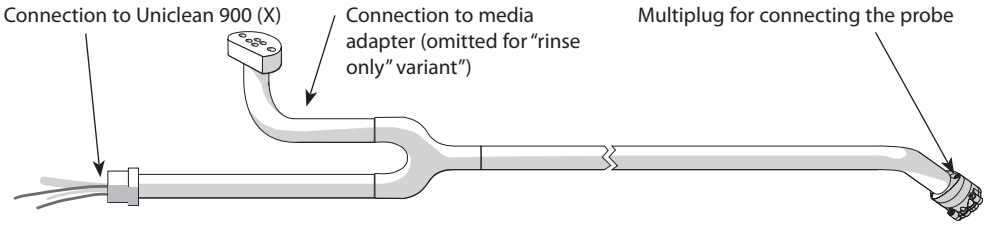
# Media Connection

Variants, Assembly

The media connection is available in 5, 10, 15, or 17 mm length.
It consists of a Ø 30 mm corrugated hose with a metal coil.
2 variants are available:
• for rinse function only (without branch outlet to media adapter)
• for cleaning and rinse function with branch outlet to media adapter

**Connections**

The connections for media adapter and probe are of a plug-in design. They are mechanically fixed by screwing. All media are guided separately through the corrugated hose. Check valves in the multiplug prevent dilution of the cleaning agent.


Connection to Uniclean 900 (X)
Connection to media adapter (omitted for "rinse only" variant")
Multiplug for connecting the probe

**Connection to Uniclean 900 (X)**

The corrugated hose is screwed to the joining piece of the Unical 900(X). Thanks to a slitted coupling nut the different media tubes can easily be fed through. The different tube lengths and diameters provide for a clear assignment. See Pg 26 for color codes.

**Connection to Media Adapter**

This connection is plugged and screwed to the media adapter. It includes three connections for media and one connection for compressed air.

**Multiplug for Connecting the Sensor Lock-Gate**

The multiplug is plugged on the Ceramat WA 150 and screwed tight.
In doing so, you must bend the media connection and fix it to the support provided to avoid that it impedes the rotation of the Ceramat WA 150 (see Pg 29).
The multiplug includes media tubing (5x, all with check valves), limit position control, and compressed air supply.

## Bill of Material for Media Connection, Cleaning and Rinse Function

(gray: omitted for media connection with "rinse function")

| Media connection | Tubings | Outer Ø | Material | Color |
|---|---|---|---|---|
| Probe compressed-air | 2 | 6, 8 | PA | Green |
| Rinse water, purge air (with rinse function only) | 2 | 6 | PA | Black |
| Rinse water, purge air | 2 | 6 | FEP | Transparent |
| Cleaning agent | 1 | 6 | FEP | Transparent |
| Compressed air supply for media adapter | 1 | 6 | FEP | Transp., red marking |

| | |
|---|---|
| Uniclean joining piece | 1.4571 |
| Corrugated hose Ø 30 mm | PVC and metal coil |
| Hose termination at probe Ø 28 | EPDM |
| Hose manifold | PP-H |
| Media adapter joining piece | PP-H |
| Multiplug | PVDF (wetted: PEEK) |

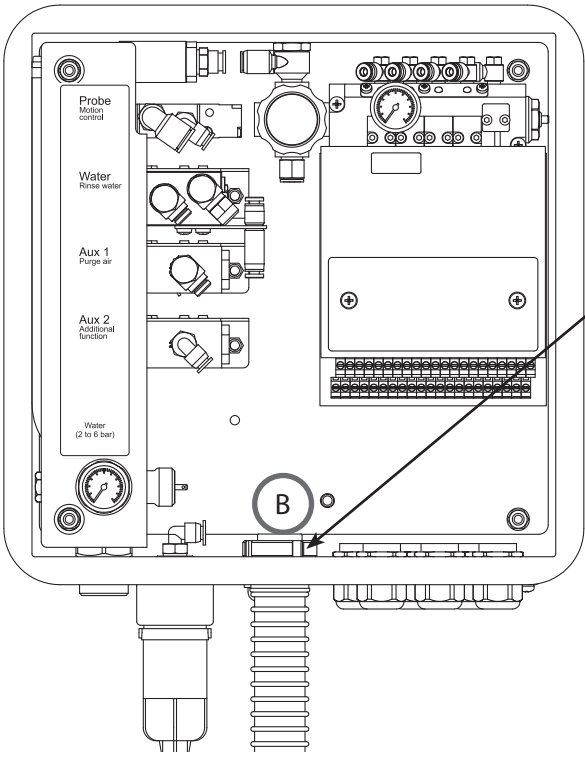
| Check valve of multiplug | | Material |
|---|---|---|
| Ball | 5 (with rinse function: 2) | Glass |
| Spring | 5 (with rinse function: 2) | Hastelloy (2.4610) |
| Gaskets | | FKM / EPDM * |

* Depending on model version:
Model ... /1: FKM
Model ... /2: EPDM

# Attaching the Media Connection

### Attaching the Media Connection to the Uniclean 900(X)

Loosen the slotted nut (A). Insert this end of the hose into the Uniclean 900(X) and tighten the nut again (B).




Media connection

The media connection is screwed on using a special wrench (included in supply, figure below).

Thanks to the slit in the coupling nut the different media tubes can easily be fed through.

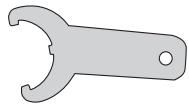


**Fig.:** Uniclean 900(X) without cover

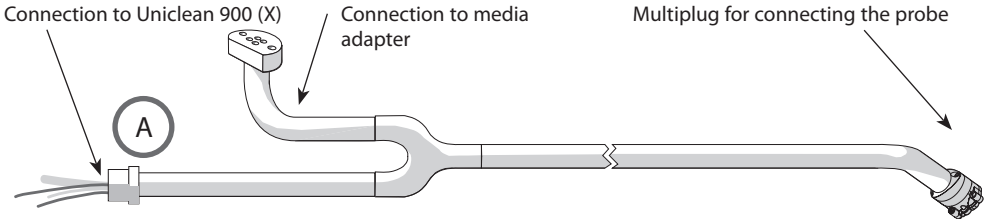



**Fig.:** Media connection

# Pneumatic Couplings on the Uniclean 900(X)

**Connecting the Tubes of the Media Connection to the Uniclean 900(X)**
The tubes of the media connection can now be connected to the Uniclean 900(X) together with the electrical connections (for interrogation of limit position). The tubes must be inserted until the stop is reached (overcoming an initial resistance).

1) The tubes for water and purge air are identical. When connecting them to the valves, tighten the coupling nut until the stop. To increase the water flow rate, you can connect both tubes to the water valve. To do so, unscrew the sealing cap from the right outlet of the water valve and screw it to the outlet of the air valve if appropriate.
2) Push the tube with the red marking into the pneumatic connection block (D) located next to the water valve.

**To detach a pneumatic coupling**

- Press the blue ring against the coupling using two fingers.
- At the same time, slightly push the tube into the coupling and then pull it out.

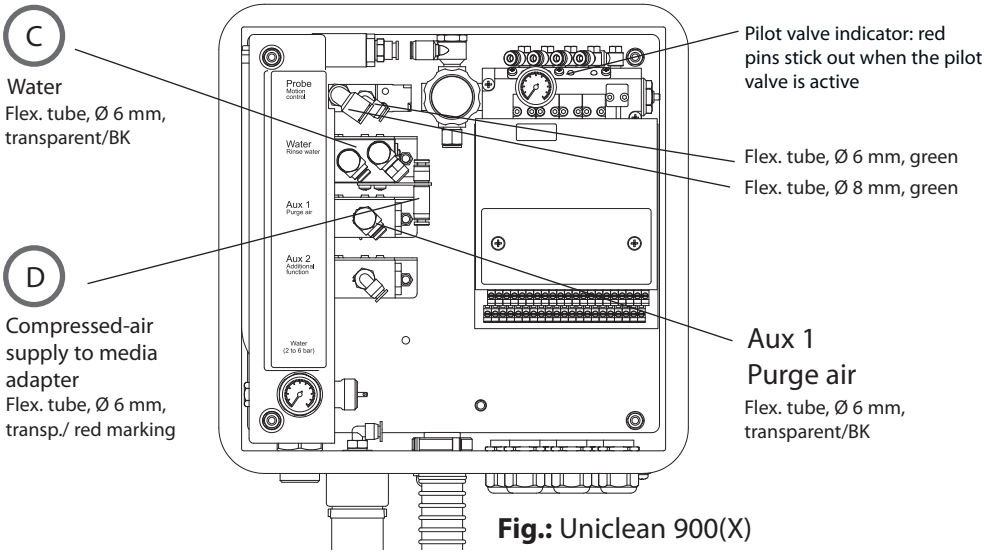



**Fig.:** Uniclean 900(X)

# Attaching the Media Connection to Ceramat WA 150(X) - Example

**Attaching the Media Connection to the Ceramat WA 150(X)**

1.Push the multiplug onto the Ceramat and screw it tight (A).
2.Bend the corrugated hose (shown in gray in the figure below) by 180° and fix the hose fastener to the Ceramat (B).
3.Connect the outlet tubing. Screw coupling nut on (C).

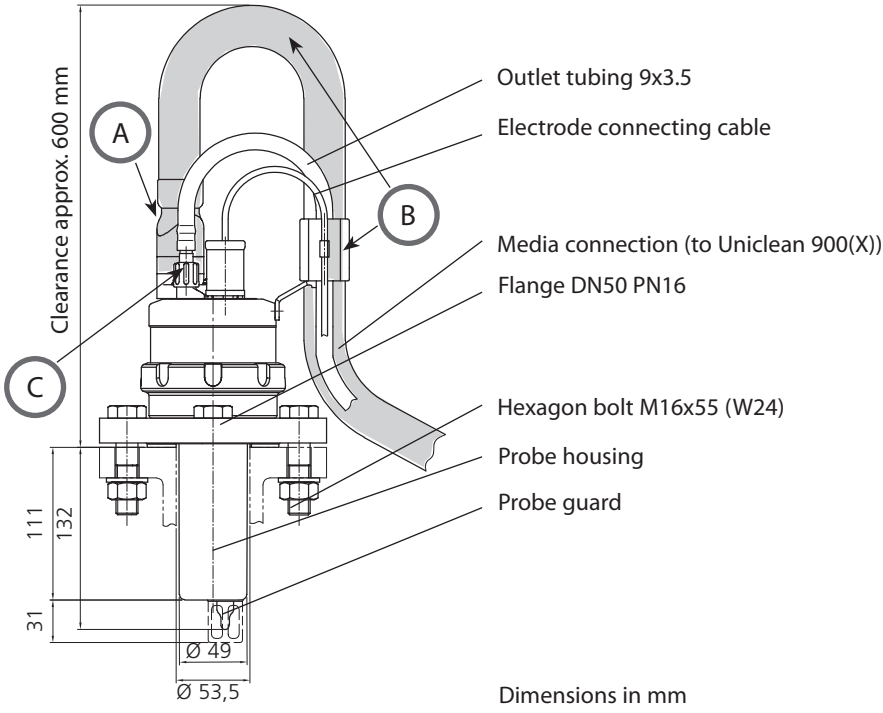
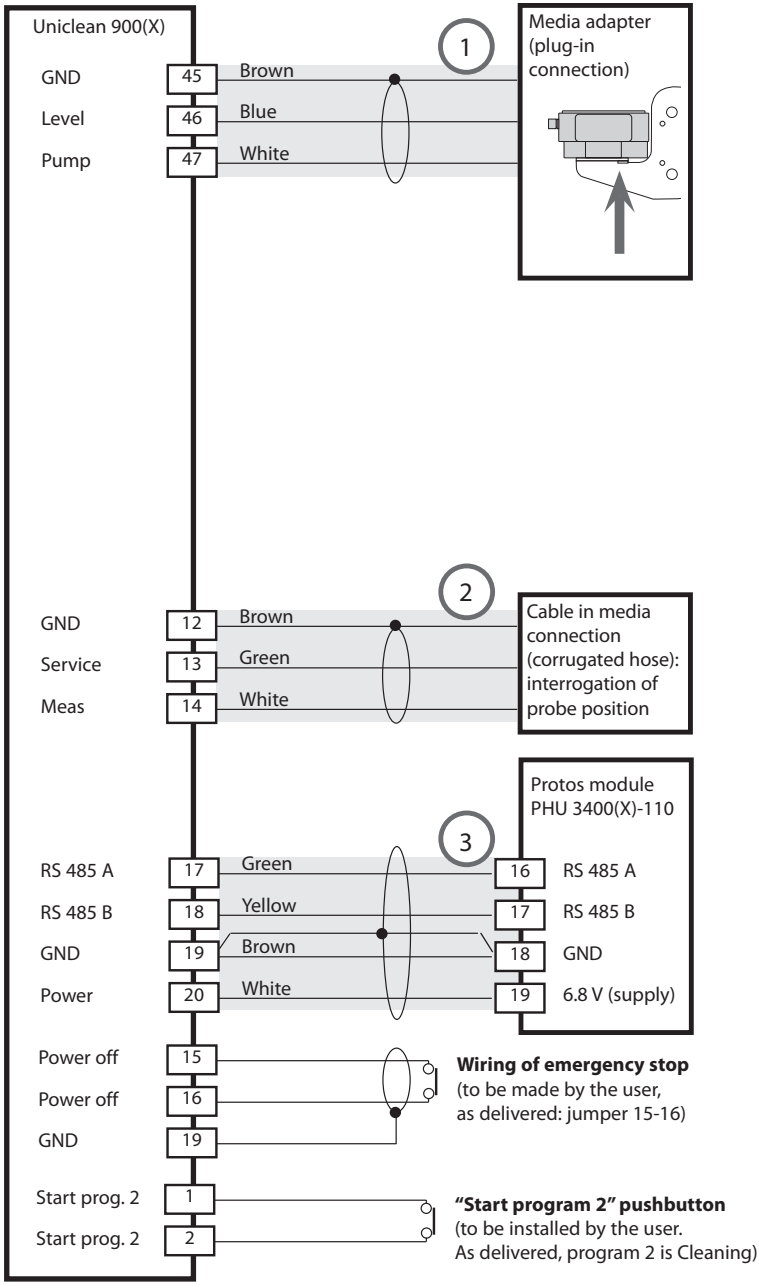



**Fig.:** Installation dimensions of Ceramat WA150(X), with DN50 PN16 flange

# Electrical Installation

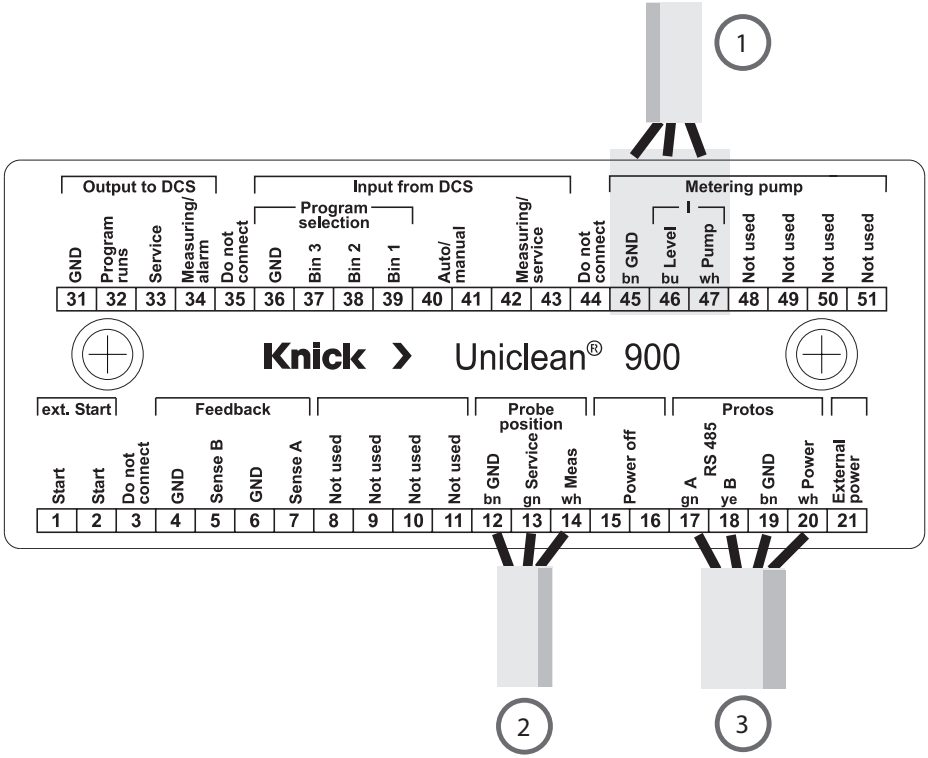


# Cable Connection

**Electrical Connections to Uniclean 900(X)**

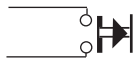
Connect preassembled cables:

1. Cable Uniclean 900 – Media adapter
2. Cable Uniclean 900 – Ceramat (probe) (in media connection)
3. Cable Uniclean 900 – Protos PHU 3400(X)-110 module



# Electrical Connection

Terminal Assignments of Uniclean 900(X)

| No. | Wire color | Terminal | Function |
|---|---|---|---|
| 1 | |  | Manual start of program 2 (default: Cleaning) via external pushbutton |
| 2 | | | |
| 3 | | Do not connect | Do not connect! |
| 4 | | GND | External sense B GND* |
| 5 | | Sense B | External sense B* |
| 6 | | GND | External sense A GND* |
| 7 | | Sense A | External sense A* |
| 8 | | | Do not connect! |
| 9 | | | Do not connect! |
| 10 | | | Do not connect! |
| 11 | | | Do not connect! |
| 12 | Brown | GND | Probe: Sense GND |
| 13 | Green | Service | Probe: Sense service (SERVICE) |
| 14 | White | Meas | Probe: Sense measurement (PROCESS) |
| 15 | | Power Off | Power Off (emergency stop) |
| 16 | | Power Off | Power Off (emergency stop) |
| 17 | Green | A RS 485 | RS 485 interface |
| 18 | Yellow | B RS 485 | RS 485 interface |
| 19 | Brown | GND | Power supply GND |
| 20 | White | Power | Power supply from Protos |
| 21 | | Ext. power | External power supply |

* Sense signal under development

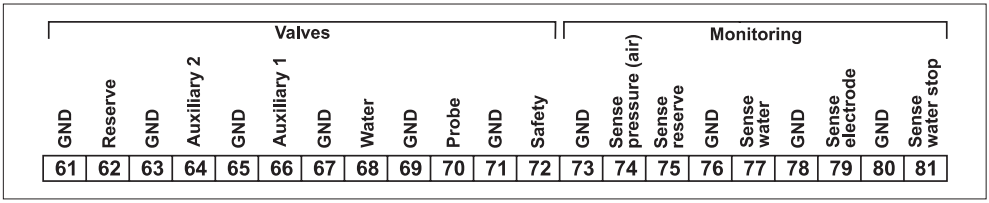
# Electrical Connection

Terminal Assignments of Uniclean 900(X)

| No. | Wire color | Terminal | Function |
|---|---|---|---|
| 31 | | GND | DCS Message GND |
| 32 | | Program runs (DCS out) | Uniclean Program running |
| 33 | | Service (DCS out) | Probe in SERVICE position |
| 34 | | Measuring / alarm | Probe in PROCESS position (or alarm output) |
| 35 | | Do not connect | Do not connect! |
| 36 | | GND | DCS program GND |
| 37 | | Bin 3 (DCS in) | Start programs 1 ... 6 |
| 38 | | Bin 2 (DCS in) | |
| 39 | | Bin 1 (DCS in) | |
| 40 | | Auto/man. (DCS in) | Enable / lock automatic program start |
| 41 | | Auto/man. (DCS in) | |
| 42 | | M/S (DCS in) | DCS Measuring/Service |
| 43 | | M/S (DCS in) | DCS Measuring/Service |
| 44 | | Do not connect | (6 mm clearance) |
| 45 | Brown | GND | Pump GND |
| 46 | Blue | Level | Pump level monitoring |
| 47 | White | Pump | Pump control valve |
| 48 | | | Do not connect! |
| 49 | | | Do not connect! |
| 50 | | | Do not connect! |
| 51 | | | Do not connect! |

# Electrical Connection

Terminal Assignments of Uniclean 900(X) - Beneath Terminal Cover -
These contacts are factory prewired.




| No. | Wire color | Terminal | Function |
|---|---|---|---|
| 61 | | GND | Do not connect! |
| 62 | | Reserve | Do not connect! |
| 63 | | GND | Auxiliary valve 2 GND |
| 64 | | Auxiliary 2 | Auxiliary valve 2 |
| 65 | | GND | Auxiliary valve 1 GND |
| 66 | | Auxiliary 1 | Auxiliary valve 1 |
| 67 | | GND | Water GND |
| 68 | | Water | Water valve |
| 69 | | GND | Probe GND |
| 70 | | Probe | Probe control valve |
| 71 | | GND | Safety valve GND |
| 72 | | Safety | Safety valve |
| 73 | | GND | Compressed-air monitoring GND |
| 74 | | Sense pressure (air) | Compressed-air monitoring |
| 75 | | Sense reserve | Reserve liquid monitoring |
| 76 | | GND | Water monitoring GND |
| 77 | | Sense water | Water monitoring |
| 78 | | GND | Dismount guard GND |
| 79 | | Sense electrode | Dismount guard |
| 80 | | GND | Water stop GND |
| 81 | | Sense water stop | Water stop |

# Control via Process Control System (DCS)

**Inputs/outputs of Uniclean 900(X)**

| No. | Designation | I / O | Level | Function |
|---|---|---|---|---|
| 42 | Measuring/ Service | I | 0 | Probe moves to meas. position * |
| 43 | | | 1 | Probe moves to service position |
| 40 | Auto/manual | I | 0 | Automatic interval control from Protos * |
| 41 | | | 1 | Automat. lock intervals |
| 37 | Bin 3 | I | | Program selection and start, manual / DCS * ** |
| 38 | Bin 2 | | | (Program 1 ... 3 - see Page 37) |
| 39 | Bin 1 | | | |
| 34 | Measuring/ alarm | O | 0 | |
| | | | 1 | Probe moves to meas. position (or alarm) * |
| 33 | Service | O | 0 | |
| | | | 1 | Probe in “Service” position * |
| 32 | Program runs | O | 0 | |
| | | | 1 | Program running * |

* Passive contacts,
24 V must be supplied externally or via DCS

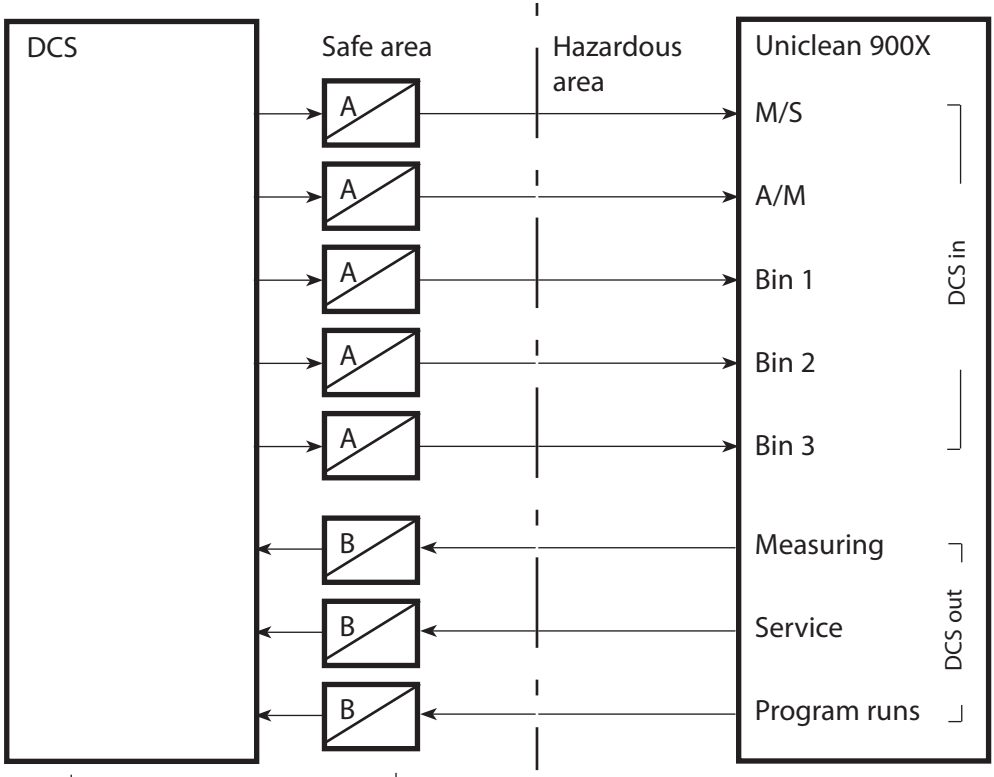
** Signal duration at least 2 sec (passing contacts)

# Ex Connection to DCS

(DCS: Digital Control System)

With the valve control modules / switch amplifiers listed below, a process control system can be used for communication with a Uniclean 900X in a hazardous location.

**Hazardous-Area Control Modules (Examples)**




| A/B | Designation | Model | Manufacturer |
|---|---|---|---|
| A | Valve control module | KFD2-SL-Ex 1.48**** | Pepperl + Fuchs |
| | Valve control module | MK 72-S17-Ex0/24VDC | TURCK |
| B | Switch amplifier | KF**-SR2-Ex1.W.** | Pepperl + Fuchs |
| | Switch amplifier | MK1-22Ex0-R/** | TURCK |

# Control Programs and Measurement Procedures

Factory Settings

**Control Programs of Uniclean 900(X)**
3 programs and one service program can be activated. Four program flows are preset. Three further programs can be entered by the user.

The programs are activated via
- Protos 3400(X)
- passive inputs Bin 1, Bin 2, Bin 3 (for DCS or switch, 24 V must be externally supplied, see specifications)

| Program | Description | Bin 3 | Bin 2 | Bin 1 |
|---|---|---|---|---|
| 1 | Rinse | 0 | 0 | 1 |
| 2 | Clean | 0 | 1 | 0 |
| 3 | Parking | 1 | 0 | 0 |
| 4 | Service program | Request via M/S | | |

The service program (4) stops all other running programs (1 - 3) immediately and erases stored requests. For programs 1-3 the following applies:
When you start a new program, the remaining steps of a currently running program are executed first. Further requests are stored and executed subsequently.
When you control the Uniclean via Protos 3400(X), you can block the Bin 1, Bin 2, Bin 3 signal lines as well as M/S and A/M to prevent conflicts (Parameter setting / Uniclean 900 / Installation / Ext. control (DCS): Off).

**Measurement Procedures**
- Continuous measurement:
  After the cleaning the probe moves into the process for measurement
- Short-time measurement (interval measurement, sampling, sample mode ...)
  After the cleaning the probe remains in the calibration chamber and only moves into the process for measurement upon request.

# SERVICE Position, Service Program

**Service Program: Request and End**
After a service request the sensor lock-gate executes the service program steps. The sensor lock-gate moves into SERVICE position. A currently running program (e.g. calibration) is immediately stopped. All other accesses are blocked. The service program defines steps for moving the sensor lock-gate as well as rinsing and cleaning procedures (see user manual of Protos PHU 3400(X)-110 module). The user can edit the program. The SERVICE position is held pneumatically and is electrically monitored. It is used for maintenance work on the probe.

**Termination of Service**
Service is only terminated after all service requests have been executed.

# Uniclean 900(X) Specifications

| | |
|---|---|
| Compressed air | Compressed air quality to ISO 8573-1:2001<br>Quality class 5.3.3 |
| Solid contaminants | Class 5 (max 40 µm, max. 10 mg/m$^3$) |
| Water content | |
| ... for temperatures ≥ 15 °C: | Class 4<br>With operating temperatures > 15 °C a pressure dew point of max 3 °C is permitted |
| ... for temperatures 5 ... 15 °C: | Class 3<br>Pressure dew point - 20 °C (or below) |
| Oil content | Class 3 (max. 1 mg/m$^3$) |
| Permitted pressure range | 4* ... 10 bars |
| Pressure monitoring | Automatic monitoring, message. |
| Connection | 1/4" internal thread |
| Air consumption | Max. 300 L/min during probe movement |
| Min. air temperature | 5 °C |
| Rinse water | Filtered 100 µm |
| Permitted pressure range | 2 ... 6 bars |
| Temperature range | 5 ... 65 °C |
| Pressure monitoring | Automatic monitoring, message. |
| Connection | 1/4" internal thread /<br>3/4" external thread |
| Media adapter | Port for metering pump (cleaning agent) |
| Material | See bill of material |
| Ingress protection | IP 65 |
| Assembly | Wall or pipe mounting (Option) |

* Increased minimum pressure of 5 bars required for probe in the case of high process pressure or difficult process media

# Uniclean 900(X) Specifications

| | |
|---|---|
| **Metering pump** | For cleaning agent |
| Bottle | 3.5 L |
| Max. lifting height | 10 m |
| Displacement volume | Approx. 25 $cm^3$/stroke |
| Level monitoring | Uniclean network diagram as well as NAMUR messages: Maintenance request and failure |
| Material | See bill of material |
| Ingress protection | IP 65 |
| Dimensions | See dimension drawing |

# Uniclean 900(X) Specifications

| | |
|---|---|
| **Power**<br>(EEx ia IIC) | Supplied via Protos module or external power supply source<br>15 ... 30 V / 20 mA<br>(see EC-Type-Examination Certificate for hazardous-area application!) |
| | PHU 3400(X)-110 6.8 V (± 10 %) / 15 mA |
| Connection | Terminals, conductor cross-section max 2.5 $mm^2$<br>(preassembled connecting cable to Protos, length 10 m) |
| **RS 485**<br>(EEx ia) | Communication with Protos PHU 3400(X)-110 module or external host computer (e.g. DCS)<br>(see EC-Type-Examination Certificate for hazardous-area application!) |
| Transmission | 1200 bauds / 8 data bits /1 stop bit / parity odd |
| Record | HART Rev. 5 |
| Connection | Terminals, conductor cross-section max 2.5 $mm^2$<br>(preassembled connecting cable to Protos, length 10 m) |
| DCS input (passive) | |
| **Measuring /Service** | Measuring / Service |
| (EEx ia IIC) | Vi = 30 V, floating,<br>galvanic isolation up to 60 V |
| Switching voltage | 0 ... 2 V AC/DC inactive (measuring)<br>10 ... 30 V AC/DC active (service) |
| Connection | Terminals, conductor cross-section max. 2.5 $mm^2$ |
| DCS input (passive) | |
| **Auto / Manual** | Automatic blocked |
| (EEx ia IIC) | Vi = 30 V, floating,<br>galvanic isolation up to 60 V |
| Switching voltage | 0 ... 2 V AC/DC inactive<br>(automatic intervals enabled)<br>10 ... 30 V AC/DC active<br>(automatic intervals blocked)) |
| Connection | Terminals, conductor cross-section max. 2.5 $mm^2$ |

# Uniclean 900(X) Specifications

| | |
|---|---|
| DCS inputs (passive) | |
| **Bin1 ... 3** | Program start 1 ... 3 |
| (EEx ia IIC) | Vi = 30 V, floating, inter-connected,<br>galvanic isolation up to 60 V |
| Switching voltage | 0 ... 2 V AC/DC inactive<br>10 ... 30 V AC/DC active |
| Connection | Terminals, conductor cross-section max. 2.5 $mm^2$ |
| DCS outputs (passive) | |
| **(Program runs,<br>Service,<br>Measuring / alarm)** | Check-back signals<br>Program running, service, measuring<br>Electronic relay contacts,<br>floating, inter-connected |
| (EEx ia IIC) | Vi = 30 V Ii = 100 mA Pi = 800 mW,<br>galvanic isolation up to 60 V |
| Voltage drop | < 1.2 V |
| Connection | Terminals, conductor cross-section max. 2.5 $mm^2$ |
| **Explosion protection** | II 2(1) GD EEx ia IIC T4 T 70°C |
| **EMC** | EN 61326 |
| **Lightning protection** | EN 61000-4-5, Installation Class 2 |
| **Protection against electric shock** | according to EN 61010 |

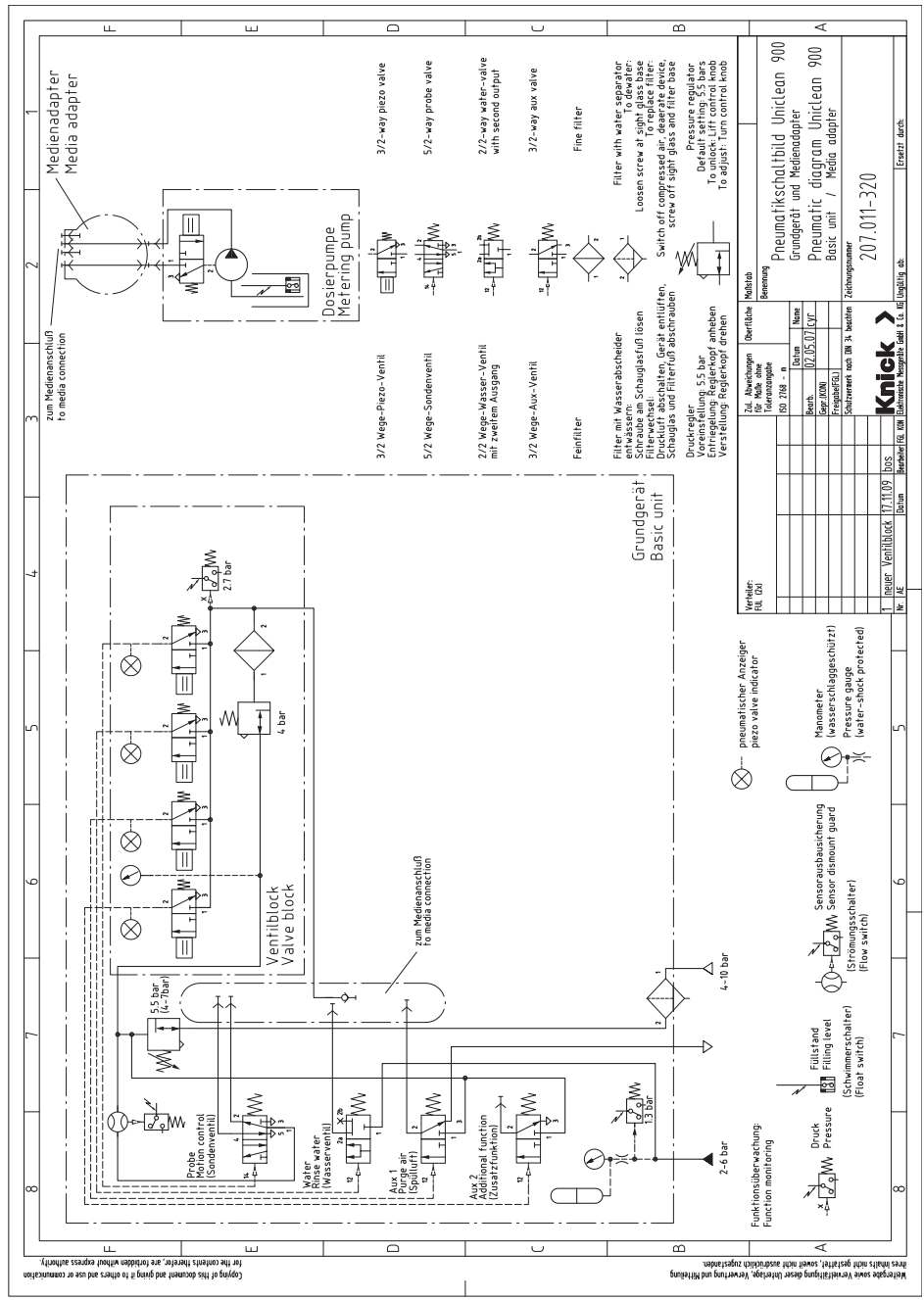
# Uniclean 900(X) Specifications

| | |
|---|---|
| **Ambient conditions** | |
| Ambient temperature | +5 ... +55 °C (Ex: +5 ... +50 °C)<br>(different temperature range on request) |
| Transport/Storage temp | -20 ... +70 °C |
| Relative humidity | 10 ... 95 % not condensing |
| **Enclosure** | |
| Enclosure surface S | Stainless steel A2, polished |
| Enclosure surface C | Stainless steel A2, coated,<br>Color: pigeon blue |
| Assembly | • Wall mounting<br>• Pipe mounting (Option) |
| Dimensions | W x H x D approx. 310 mm x 410 mm x 135 mm |
| **Ingress protection** | IP 65 / NEMA 4X |
| Cable glands | 6 M20x1.5 cable glands |
| Weight | Approx. 8.5 kg |

# Appendix

The following detail drawings are found in the appendix:
- Uniclean 900(X) pneumatic diagram
- Media connection
- Connection of standard probes using standard probe adapter (ZU 0576)
- Table for selecting a cleaning agent

For enlarged printouts of the drawings, these installation instructions can be downloaded from: www.knick.de.

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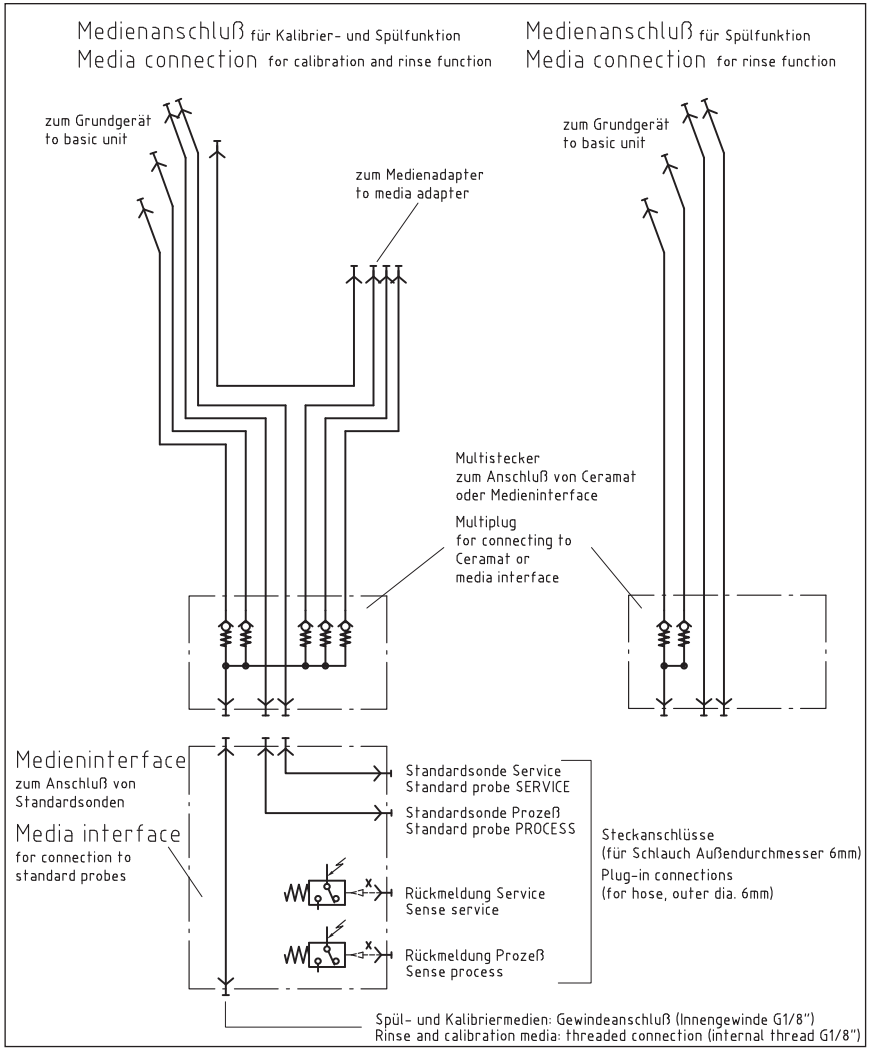
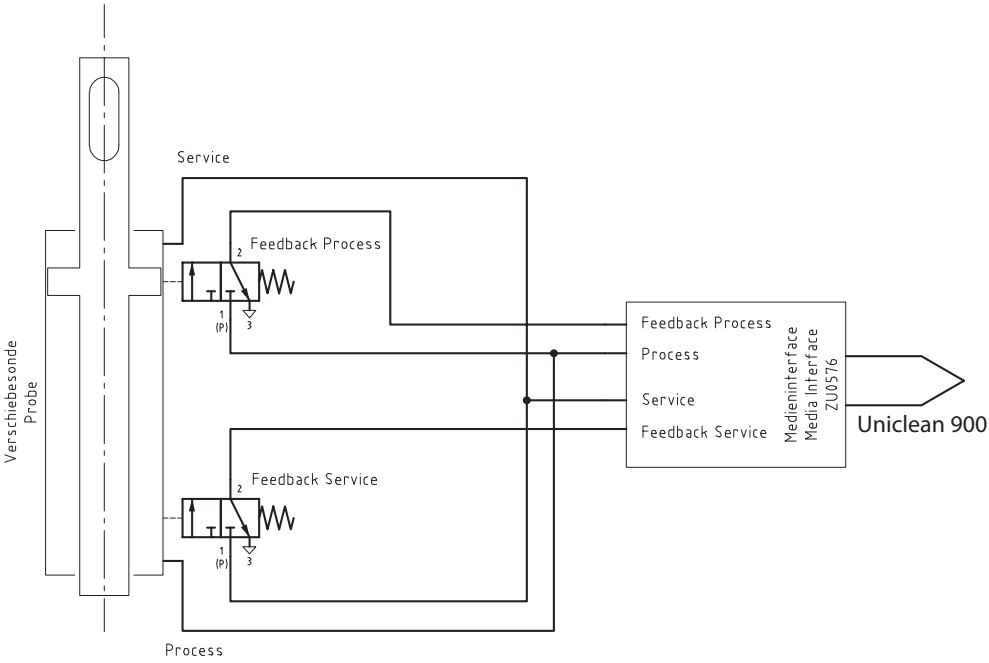



Pneumatic Diagram for Media Connection to Uniclean 900

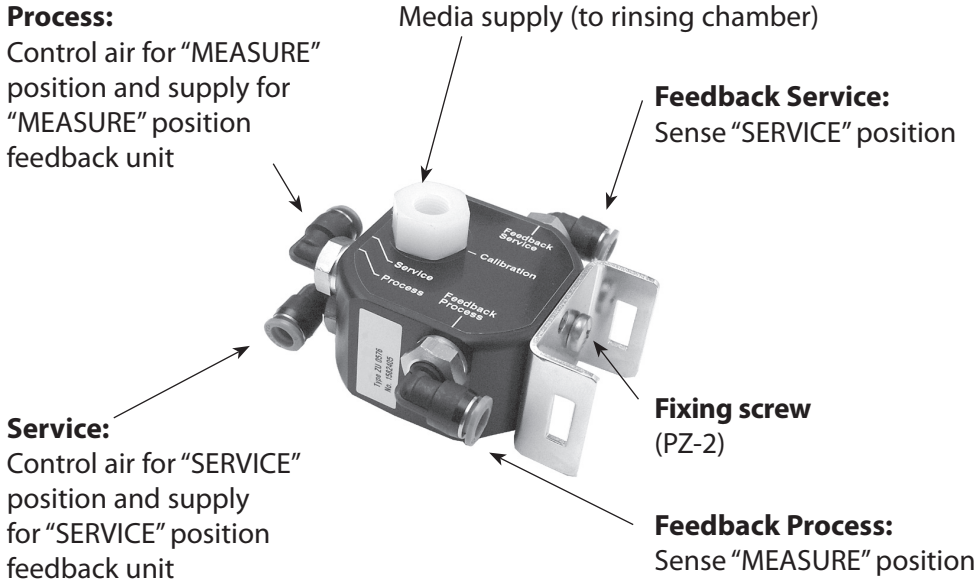
# Recommended Connection of Standard Retractable Housings, e.g. InTrac 7xx (Mettler-Toledo)




Explanation:
The compressed air used for the probe motion (e.g. Process) is also used to provide the air pressure for the next expected feedback valve (i.e., Feedback Process) to generate the feedback signal for the Uniclean 900(X).

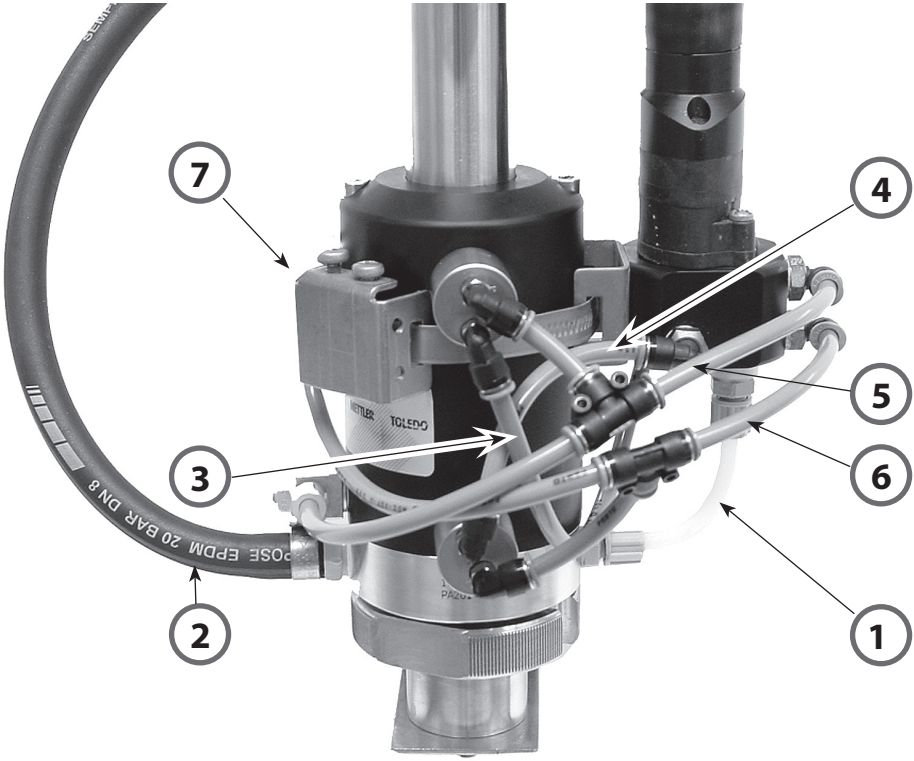
# Standard Media Interface (ZU 0576)
# Connecting an InTrac 7xx Retractable Housing

The retractable housings of the InTrac 7xx series provide pneumatic limit switches. The media interface shown here converts these pneumatic check-back signals into electric signals for the Uniclean 900(X) probe controller. The interface is screwed directly to the media connection and only has to be connected to the InTrac 7xx retractable housing by a flexible tube.



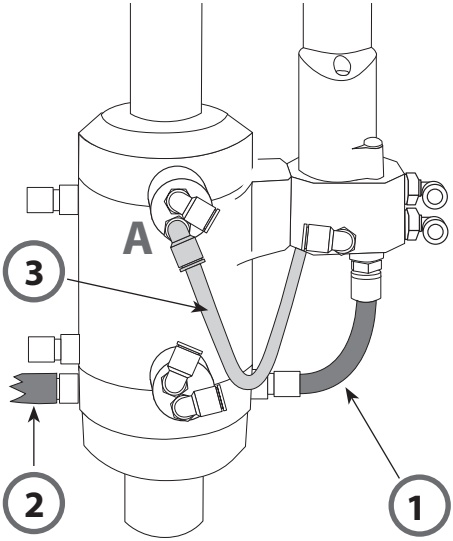

The interface is mounted to the retractable housing using the included hose clamp. To turn the interface into the required position, you can loosen the fixing screws. The holding bracket providing strain relief for the media connection can be fastend with the same or a separate hose clamp – as required. Use the included connection kit for connecting the Intrac 7xx retractable housing.
All connections to the Uniclean 900 are made by screwing on the multiplug. To finish the installation, hang the media connection into the holding bracket (strain relief) and secure it by tightening the screws.

# Recommended Connection of InTrac 7xx Retractable Housing




1 Media connection to rinsing chamber
2 Rinsing chamber outlet
3 Check-back of "Service" position
4 Check-back of "MEASURE" position
5 Control air for "SERVICE" position and supply for "SERVICE" position feedback unit
6 Control air for "MEASURE" position and supply for "MEASURE" position feedback unit
7 Holding bracket for strain relief of media connection

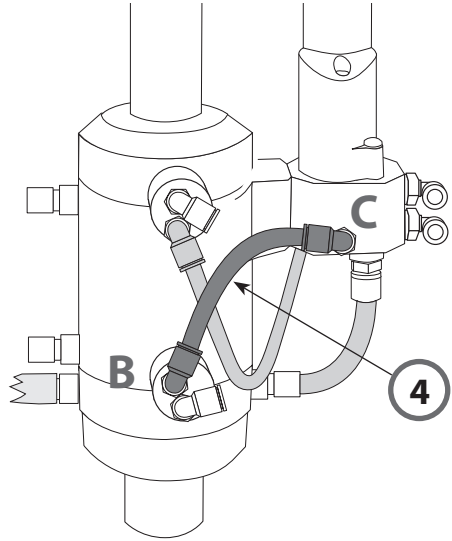
# Connecting an InTrac 7xx Retractable Housing




**1 Media connection to rinsing chamber**

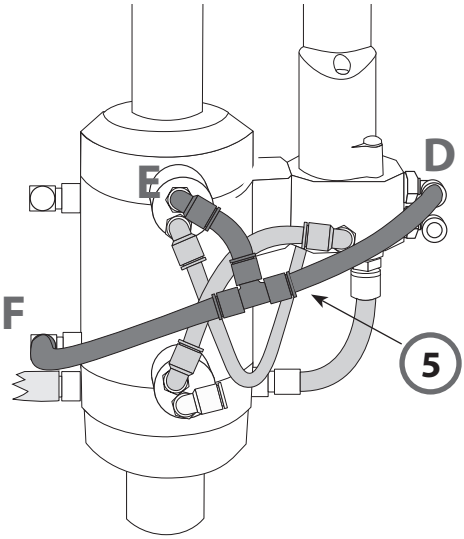
**2 Rinsing chamber outlet**
Connect outlet here.

**3 Feedback of "SERVICE" position**
Connect the "SERVICE" feedback unit of the probe (A) – unlabeled connecting port – with the "Feedback Service" port on the adapter by a flexible tube (on back of adapter, not visible in the figure).

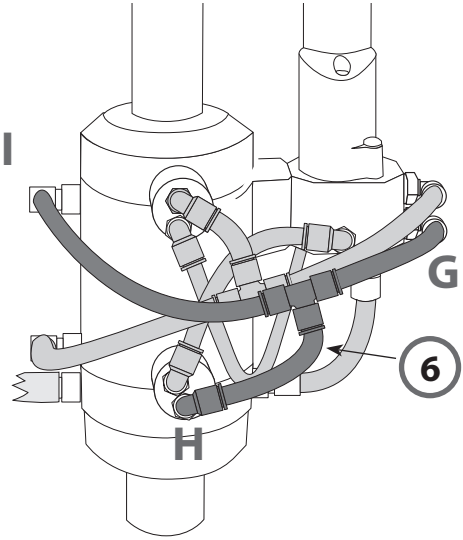



**4 Feedback "MEASURE" position**
Connect the "MEASURE" feedback unit of the probe (B) – unlabeled connecting port – with the "Feedback Process" port on the adapter (C) by a flexible tube.

# Connecting an InTrac 7xx Retractable Housing




5 Control air for "SERVICE" position and supply for "SERVICE" position feedback unit
Place flexible tube between "SERVICE" port at adapter (D) (control air), "SERVICE" position feedback supply (E)
– connecting port labeled "p / 1" – and "SERVICE" port (F) at probe.



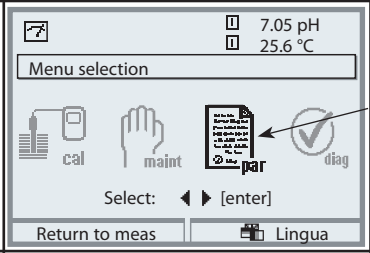
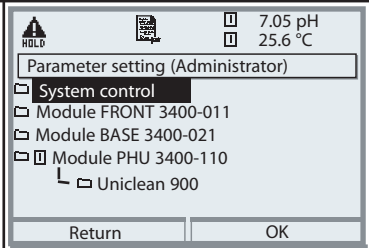
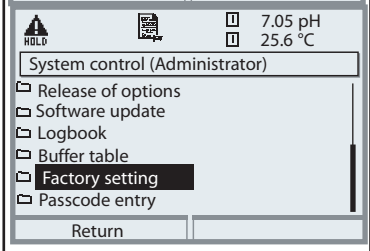
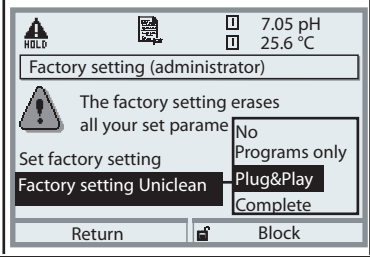

6 Control air for "Measure" position and supply for "Measure" position feedback unit
Place flexible tube between "PROCESS" port at adapter (G) (control air), "MEASURE" position feedback supply (H)
– connecting port labeled "p / 1" – and "MEASURE" port (I) at probe.

# Commissioning of Hardware

1. Check air and water connection (Page 20)
2. Check media connection (Page 28)
3. Check electrical connections (Page 31)
4. Switch on compressed air.
   Adjust pressure according to the air pressure gauge using the pressure regulator.
   Check tightness: When the compressed air is shut off directly at the Uniclean, pressure may decrease by max. 10 % within 30 sec.
5. Switch on water supply.
   Check pressure at water pressure gauge, check tightness.
6. Switch on power supply for Protos.

# Start-up: “Plug and Play”

First select “Plug and Play” in the Parameter Setting menu:
The Uniclean 900(X) probe controller automatically recognizes the hardware installed and sets the corresponding installation parameters.

| Menu | Display | Plug and Play |
|---|---|---|
| |  | **Open parameter setting**<br>From the measuring mode:<br>Press **menu** key to select menu.<br>Select parameter setting using arrow keys, confirm with **enter**. |
| par |  | Parameter setting:<br>Select “System control”. |
| |  | Select “Factory setting”. |
| |  | First “Factory setting Uniclean”, then “Plug and Play”.<br>The hardware installed is automatically recognized. |

# Start-up Program

**Parameter Setting: The Start-up Program**
At the end of the parameter-setting procedure, a "Start-up" line appears in the "Installation" menu. When you are sure to have set all parameters, select "Yes" to confirm.
Now the pumps perform the number of stroke movements required for filling the media tubes completely.
The necessary rinsing cycles are automatically started.

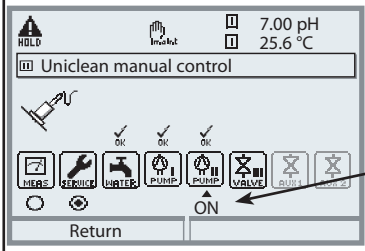
The buffer pumps require approx. 1 stroke to fill the pump and approx. 9 strokes to fill the tubing.

**Notice:**
When the media connection is longer than 10 m, three further pump strokes are required to fill the tubings.

**Electrode Dismount Guard**
To check the electrode dismount guard (only in conjunction with Ceramat), loosen the electrode (hissing sound at the electrode). The dismount guard has a response time of approx. 2 sec until the error message is displayed on the Protos.

# Manual Control via Protos 3400(X)

"Maintenance / Uniclean 900" Menu

| Menu | Display | Maintenance |
|---|---|---|
| |  | **Manual control**<br>(requires access code:<br>specified in the<br>"Parameter setting / Installation" menu)<br>Select function using arrow keys.<br>Symbol flashes, activate with **enter** –<br>"ON" appears below the icon.<br>End with **enter**.<br>("ON" disappears again.) |

**Warning for Use of Manual Control!**

**When the electrode has been removed, it must always be replaced by a dummy! During manual control the dismount guard does not prevent insertion into the process!**

Manual control via Protos 3400(X) allows actuating the Uniclean 900 probe controller for servicing.
Rinsing water, media supply, and valve functions can be tested individually.

# Selected Cleaning Agents for Uniclean 900 and their Applications

The sealing material of the accessories is identified by a suffix to the order number.
Suffix / 1 stands for FKM, suffix / 2 for EPDM.
Example:
Metering pump, sealing material FKM: Order number ZU 0580 / 1
Metering pump, sealing material EPDM: Order number ZU 0580 / 2

| **Cleaner** | **Chemical formula** | **Concen-tration** | **Application** | **Possible accessories** (sealing material) Suffix /1 **FKM** | Suffix /2 **EPDM** |
|---|---|---|---|---|---|
| Diluted acids: | | | e.g. against limy deposits | | |
| Hydrochloric acid | HCl | Max. 5 % | | + | + |
| Sulfamic acid | $H_3NO_3S$ | | Food industry | + | + |
| Acetic acid | $CH_3COOH$ | | | | + |
| Nitric acid | $HNO_3$ | Max. 5 % | | + | + |

| Cleaner | Chemical formula | Concen-tration | Application | Possible accessories (sealing material) Suffix /1 FKM | Suffix /2 EPDM |
|---|---|---|---|---|---|
| Diluted alkaline solutions: | | | Proteins, starch, fats, ZIP | | |
| Sodium hydroxide solution | NaOH | Max. 5 % | | | + |
| | | | | | |
| Organic solvents: | | | e.g. against limy deposits | | + |
| Ethyl alcohol | $C_2H_5OH$ | | Food industry | + | + |
| Isopropyl alcohol | $C_3H_8OH$ | | | + | + |
| Other cleaning agents: | | | | | |
| Pepsine solution | | | Starch | + | + |

(1) # EG-BAUMUSTERPRÜFBESCHEINIGUNG

(2) **Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - Richtlinie 94/9/EG**

(3) EG-Baumusterprüfbescheinigung Nummer: **KEMA 04ATEX1036** Ausgabe Nummer: **2**

(4) Gerät: **Wechselsondensteuerung Typ Unical 9000-X... und Typ Uniclean 900-X...**

(5) Hersteller: **Knick Elektronische Messgeräte GmbH & Co. KG**

(6) Anschrift: **Beuckestrasse 22, D-14163 Berlin, Deutschland**

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser EG-Baumusterprüfbescheinigung und in den zugehörigen Unterlagen festgelegt.

(8) KEMA Quality B.V. bescheinigt als benannte Stelle Nr. 0344 nach Artikel 9 der Richtlinie 94/9/EG des Rates der Europäischen Gemeinschaften vom 23. März 1994, die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind im vertraulichen Prüfbericht Nr. 2107128 festgelegt worden.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

**EN 50014 : 1997 + A1, A2** **EN 50020 : 2002**
**EN 50281-1-1 : 1998 + A1** **EN 50284 : 1999**

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konstruktion, Überprüfung und Tests des spezifizierten Gerätes in Übereinstimmung mit Richtlinie 94/9/EG. Weitere Anforderungen der Richtlinie gelten für das Herstellungsverfahren und die Lieferung dieses Gerätes. Diese sind von vorliegender Bescheinigung nicht abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

**II 2(1) GD EEx ia IIC T4 T 70 °C**

Diese Bescheinigung ist erstellt am 22. Juni 2007 und ist, soweit zutreffend, zu revidieren vor dem Datum der Beendigung der Annahme der Konformitätsvermutung (einer) der oben erwähnten Normen, wie angekündigt im Amtsblatt der Europäischen Union.

KEMA Quality B.V.

T. Pijpker
Certification Manager

Seite 1/3

PRODUCTS RvA C 001

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Translation, original language: German

(1) # EC-TYPE EXAMINATION CERTIFICATE

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) EC-Type Examination Certificate Number: **KEMA 04ATEX1036** Issue Number: **2**

(4) Equipment: **Retractable Probe Control Unit Type Unical 9000-X... and Type Uniclean 900-X...**

(5) Manufacturer: **Knick Elektronische Messgeräte GmbH & Co. KG**

(6) Address: **Beuckestrasse 22, D-14163 Berlin, Germany**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report number 2107128.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 50014 : 1997 + A1, A2** **EN 50020 : 2002**
**EN 50281-1-1 : 1998 + A1** **EN 50284 : 1999**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

**II 2(1) GD EEx ia IIC T4 T 70 °C**

This certificate is issued on 22 June 2007 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.

T. Pijpker
Certification Manager



PRODUCTS RvA C 001

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# CERTIFICATE OF COMPLIANCE

## HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

***Unical-9000 - XSabcdefgh 000 000 Control System***

IS / I, II, III / 1 / ABCDEFG / T4 Ta = 2°C to 50°C - 207.011-260 Entity; Type 4X/IP65
I / 0 / AEx ia IIC / T4 Ta = 2°C to 50°C - 207.011-260 Entity; Type 4X/IP65
NI / I / 2 / ABCD; S / II, III / 2 / EFG /T4 Ta = 2°C to 50°C; Type 4X/IP65
I / 2 / IIC / T4 Ta = 2°C to 50°C; Type 4X/IP65

Where

a = Media connection: 1, 2, 3, 4
b = Media Interface: 0, 1
c = Media Adapter: 0, 1, 2
d = Equipment for Port I: 0, 2
e = Equipment for Port II: 0, 2
f = Equipment for Port III: 0, 2, 3
g = Supplementary air purging kit: C, N
h = Supplementary ext. valve control kit: E, N

Equipment Ratings:

Intrinsically Safe for Class I, II, and III, Division 1, Groups A-G; intrinsically safe for Class I, Zone 0, Group IIC; suitable for Class I, II, and III, Division 2, Groups A-G; suitable for Class I, Zone 2, Group IIC.

FM Approved for:

Knick Elektronische Meßgeräte GmbH & Co. KG
Berlin, Germany

# Index

**A**
Appendix 44, 46
Application in hazardous locations 11
Arrangement of functional elements 20
Assembly 15
Attaching the media connection 27
Attaching the media connection to the media adapter 22

**B**
Bill of material for media adapter 24
Bill of material for media connection, cleaning and rinse function 26
Bill of material for metering pump 24

**C**
Cable connection 31
Ceramat WA 150(X) 29
Cleaning agent 21, 56
Commissioning 52
Compressed-air supply 19
Compressed air 39
Connections 25
Control programs of Uniclean 900(X) 37
Control via process control system 35

**D**
Detach pneumatic connection 28
Disposal 2
Distances and lifting height 15

**E**
EC Declaration of Conformity 3
EC-Type-Examination Certificate 59
Electrical connections to Unical 9000(X) 31
Electrical installation 30

# Index

Electrode dismount guard 54
Emergency stop 30
Ex connection to DCS 36

**F**
FM Control Drawing 60

**I**
Installation 12
Intended use 10
InTrac 7xx 47

**L**
Lifting height of pumps 15

**M**
Manual control 55
Measurement procedures 9
Media adapter 18, 21
Media connection 25
Media supply with media adapter 21
Metering pump 23
Mounting dimensions 16
Multiplug 25

**O**
Order numbers 13

**P**
Pipe diameter 17
Plug-in connection for media and control signals 22
Pneumatic couplings 28
Pneumatic diagram of media connection 46
Pneumatic diagram of Uniclean 900 45
Post mounting 17

# Index

Product coding 13
Product line 14
Pushbutton (start program 2) 30

**R**
Rating plates 12
Request and end 38
Return of products under warranty 2

**S**
Safety information 11
Service program 37
Short description 7
Specifications of Uniclean 900(X) 39
Standard media interface 48
Standard retractable fittings 47
Start-up 53
Start-up program 54

**T**
Table of contents 5
Terminal assignments of Uniclean 900(X) 32
Trademarks 2

**W**
Wall mounting 16
Warranty 2
Water supply 19

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CE

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